RESCUEfromSKY
AIR RANGER
RESCUE HELICOPTER
AIR RANGER

FLIGHT MANUAL

Precautions

• This disc contains software for the PlayStation®2 computer entertainment system. Never use this disc on any other system, as it could damage it. • This disc conforms to PlayStation®2 specifications for the PAL market only. It cannot be used on other specification versions of PlayStation®2. • Read the PlayStation®2 Instruction Manual carefully to ensure correct usage. • When inserting this disc in the PlayStation®2 always place it with the required playback side facing down. • When handling the disc, do not touch the surface. Hold it by the edge. • Keep the disc clean and free of scratches. Should the surface become dirty, wipe it gently with a soft dry cloth. • Do not leave the disc near heat sources or in direct sunlight or excessive moisture. • Do not use an irregularly shaped disc, a cracked or warped disc, or one that has been repaired with adhesives, as it could lead to malfunction.

Health Warning

For your health, be sure to take a break of about 15 minutes during every hour of play. Avoid playing when tired or suffering from lack of sleep. Always play in a well-lit room, sitting as far from the screen as the cord will allow. Some people experience epileptic seizures when viewing flashing lights or patterns in our daily environment. These people may experience seizures while watching TV pictures or playing video games. Even players who have never had any seizures may nonetheless have an undetected epileptic condition. Consult your doctor before playing video games if you have an epileptic condition or immediately should you experience any of the following symptoms during play: dizziness, altered vision, muscle twitching, other involuntary movements, loss of awareness of your surroundings, mental confusion, and / or convulsions.

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See back page of this manual for Customer Service Numbers.

SLES-50953

1 Player • Memory Card (8MB) (for PlayStation®2) : 110KB minimum • Analog Control Compatible: all buttons • Vibration Function Compatible

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What is 'AIR RANGER'?

The modern world. Human life continues to push the boundaries of science and technology. With advances in transport, people can easily travel vast distances. As leisure activities increase and diversify, the number of people enjoying a multitude of new experiences constantly increases.

However, in direct proportion to these advances, the potential for tragedy is also on the increase. The disaster of today could occur at anytime, in any place, and under the strangest or most unlikely of circumstances.

There is a private company who employs helicopters to carry out search and rescue operations at the scenes of such disasters. Their name is what they do – "Search and Rescue." Under the slogan "Rescue From The Sky," they have an impressive record in the field of air rescue.

Furthermore, within this organisation there is an Elite Helicopter Unit. This unit is called – "Air Ranger".

Search and Rescue Company Breakdown

The Search and Rescue Company

Sea Ranger – Working at the scene of boating accidents and collisions in the shipping lanes, Sea Ranger is the seaborne backup team for Air Ranger. Their primary role is to locate and aid survivors until the helicopter gets to the scene and to generally make sure that the rescue goes smoothly.

Air Ranger – Using three helicopters, the BK-177-B, CH-47J and OH-6D, this elite unit can respond to any kind of disaster.

Land Ranger – First on the scene of traffic accidents or raging fires, Land Ranger is the ground support for Air Ranger. They administer aid to survivors until the helicopter arrives, clear space for it to land if necessary, and prep anything that requires transportation.

Character Introduction

Kane

[PILOT]

Sex	Male
Age	25 years old
Nationality	American
Height	173cm
Blood Type	A
Hobbies	Soccer, Rock Climbing

A nice guy, with a cool, clear head. His sense of justice is the strongest in the team. Whilst he is forthright and confident in his work, in his personal life he is more of the quiet, shy type. His cool precision and judgement make him an excellent pilot. The player takes on the role of Kane during the game.

Matilda

[CO PILOT]

Sex	Female
Age	24 years old
Nationality	English
Height	165cm
Blood Type	0
Hobbies	Karate, Reading

The co-pilot's primary role is to take the seat next to the pilot, and keep him updated on the current situation, handle communications with base, and generally support them in their duties. Matilda is one of the best; under even the harshest conditions, she can quickly but precisely relay all the required information in order to complete the rescue.

Bob

[RESCUE OPERATIVE]

Sex	Male
Age	27 years old
Nationality	Australian
Height	185cm
Blood Type	B
Hobbies	Weight Lifting, Free Fall Skydiving

Although he gives off the impression of an easy going fellow, when it comes to the punch he is all business. His job during the rescue is to be lowered on a wire to perform mid-air rescue operations, and due to the severity of this task he works out all the time. He is a cheerful tough guy, who idolises Clark Kent and Jacques Mayol.

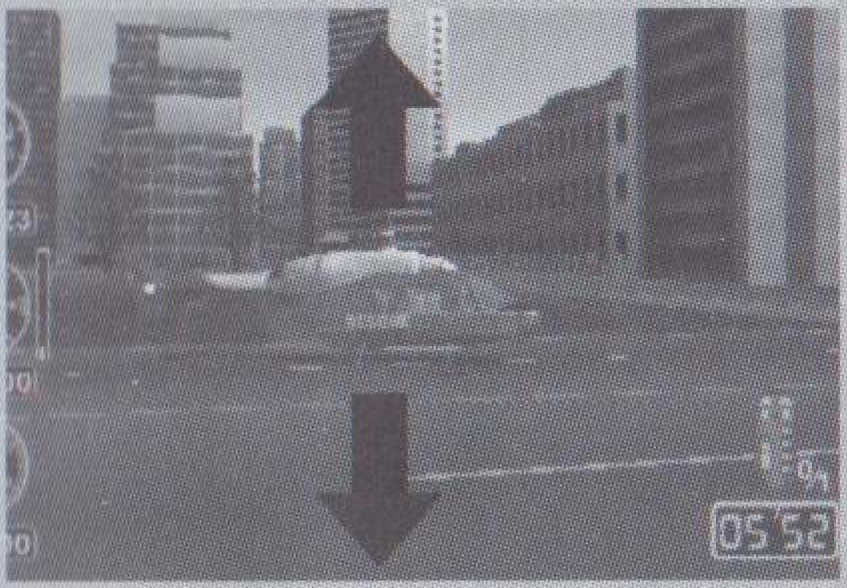
Ivan

[COMMANDER]

Sex	Male
Age	35 years old
Nationality	American
Height	180cm
Blood Type	A
Hobbies	Gardening, Chess

The cool, collected commander who brings the Air Ranger team together. He works behind the scenes of an operation, co-ordinating communications with Sea Ranger and Land Ranger during a mission, and arranging helipad facilities at both emergency hospitals and temporary sites. He is trusted in the utmost by the Search and Rescue Company.

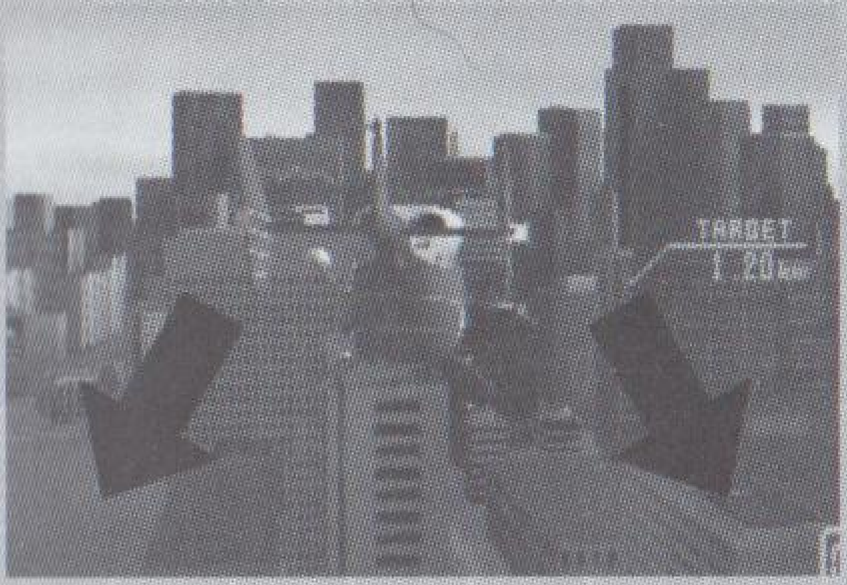
Quick Reference



Ascend / Descend

L1 button ascends, **L2** button descends

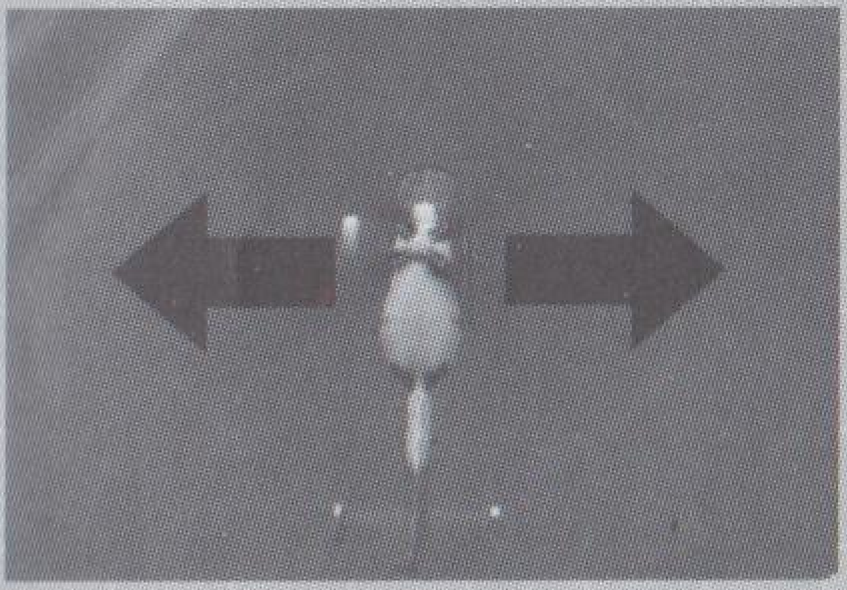
Make the helicopter either ascend or descend. When you press the **L1** button, the vertical velocity reading will rise, and in response your ascent or decent speed will increase. In a real helicopter, this is accomplished by the collective stick, which controls the angle (pitch) of the main rotor blades.



Move Forward / Backward and Turn

Left analog stick

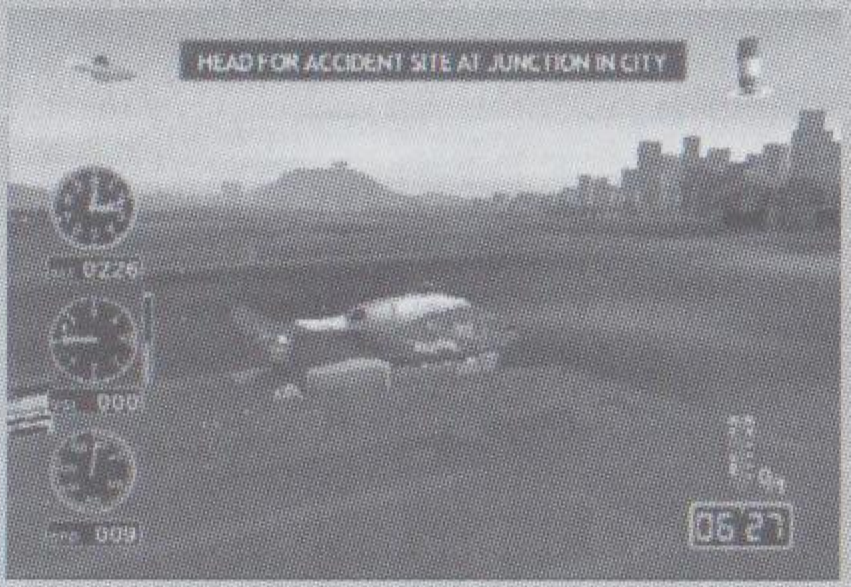
By tipping the helicopter, it thus proceeds in that direction. In a real helicopter, the cyclic stick controls this movement.



Nose Direction

Right analog stick

Control the direction of the helicopter's nose. In a real helicopter, this is controlled using the tail (anti-torque) rotor, operated by the pedals.


HEAD FOR ACCIDENT SITE AT JUNCTION IN CITY
06:27

Hovering

Maintain height with L1 / L2 buttons

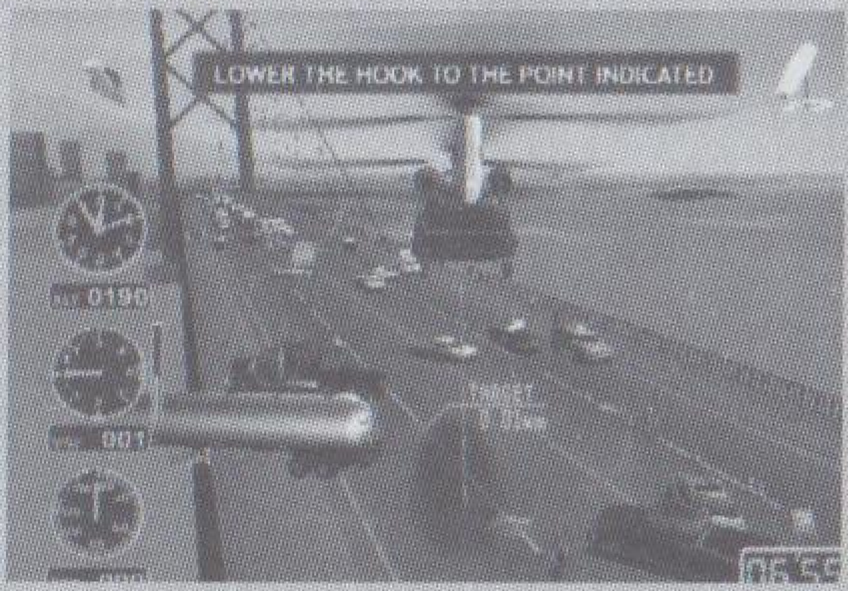
One of the exclusive attributes of a helicopter, and the one that makes mid-air rescue possible, is the ability to hover. In order to remain perfectly steady in the air, difficult and precise control is required. If you reduce your vertical velocity to zero using the L1 button and L2 button, then you can hover at your current height.

HEAD FOR ACCIDENT SITE AT JUNCTION IN CITY
06:08

Torque

Control the helicopters facing with the right analog stick

When the main rotor spins, it creates an opposing force in the opposite direction. This is called torque. If nothing was done about this, then the helicopter would spin out of control, so this torque has to be cancelled out. This is done using the tail rotor. In order to achieve this, very precise control of the right analog stick is required.


LOWER THE HOOK TO THE POINT INDICATED

Lower

R1 button / R2 button - Use to lower the wire or rescue operative.

Change Viewpoint

Up / down / right / left directional buttons - Change the camera angle.

Starting a New Game

AR226
AIR RANGER
PRESS START

1. Set up your PlayStation®2 computer entertainment system according to the instructions in its instruction manual. Attach game controllers and other accessories, as appropriate.

2. Make sure the MAIN POWER switch (located at the back of the console) is turned ON.

3. Press the ⏻/RESET button. When the ⏻ indicator is green, press the ⏏ button. The disc tray opens.

4. Place the Air Ranger Rescue disc on the disc tray with the label side facing up. Press the ⏏ button again and the disc tray closes.

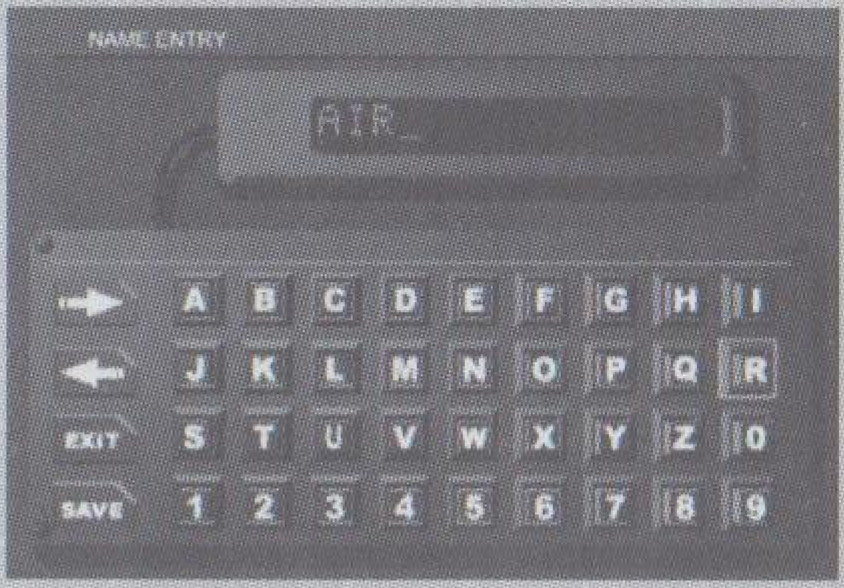
5. Follow on-screen instructions and refer to this manual for information on using the software.

You can skip to the title screen during the opening by pressing the ▶ START button. Press the ▶ START button here and the play files will be displayed. It is advised that you do not insert or remove accessories once the power is on.

Make sure there is enough free space on your memory card (8MB) (for PlayStation®2) before commencing play. On boot up, choose to display the game in 50Hz or 60Hz. If the 60Hz display is selected, the introduction movie and Lecture mode are unavailable. These can only be viewed in 50Hz.

*This game saves data to a memory card (8 MB) (for PlayStation®2). In order to play Air Ranger Rescue, a memory card (8MB) (for PlayStation®2) has to be inserted in MEMORY CARD slot 1 before turning the console on. A play file also has to be created and saved, in order to progress to the Main Selection Screen. A memory card (8MB) (for PlayStation®2) with at least 110KB free space is required.

Beginning a New Game


NAME ENTRY
AIR_
A B C D E F G H I
J K L M N O P Q R
EXIT S T U V W X Y Z 0
SAVE 1 2 3 4 5 6 7 8 9

Create a play file

Creates a personal file. First select a file, and then enter a user name.

Name Entry

Directional buttons – move cursor

⊗ button – input character

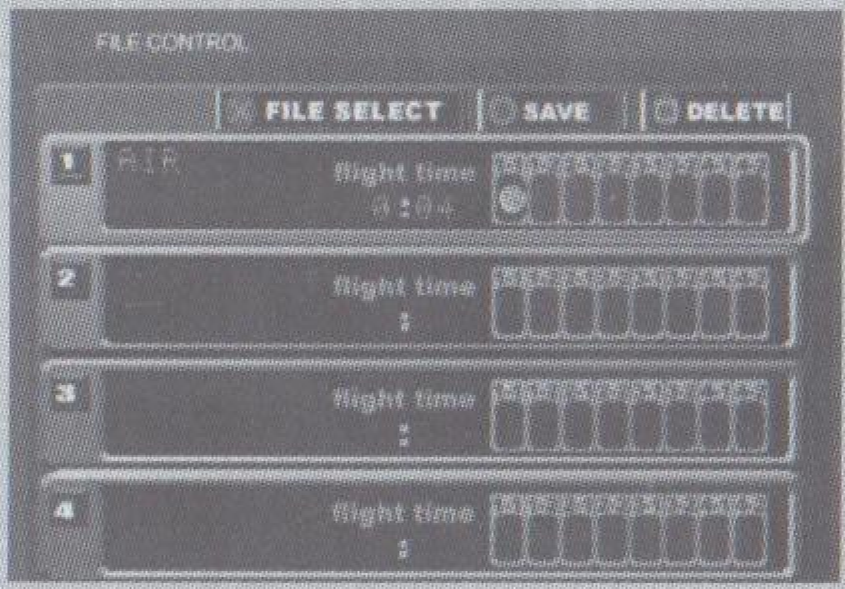
△ button – delete character (when the character is highlighted)

▶ START button – create file

When you have finished entering the name, press the ▶ START button. The file will then be saved to the memory card (8MB) (for PlayStation®2).

Continuing a Previous Game

Select a play file


FILE CONTROL
FILE SELECT
SAVE
DELETE
1 AIR flight time 0:04
2 flight time :
3 flight time :
4 flight time :

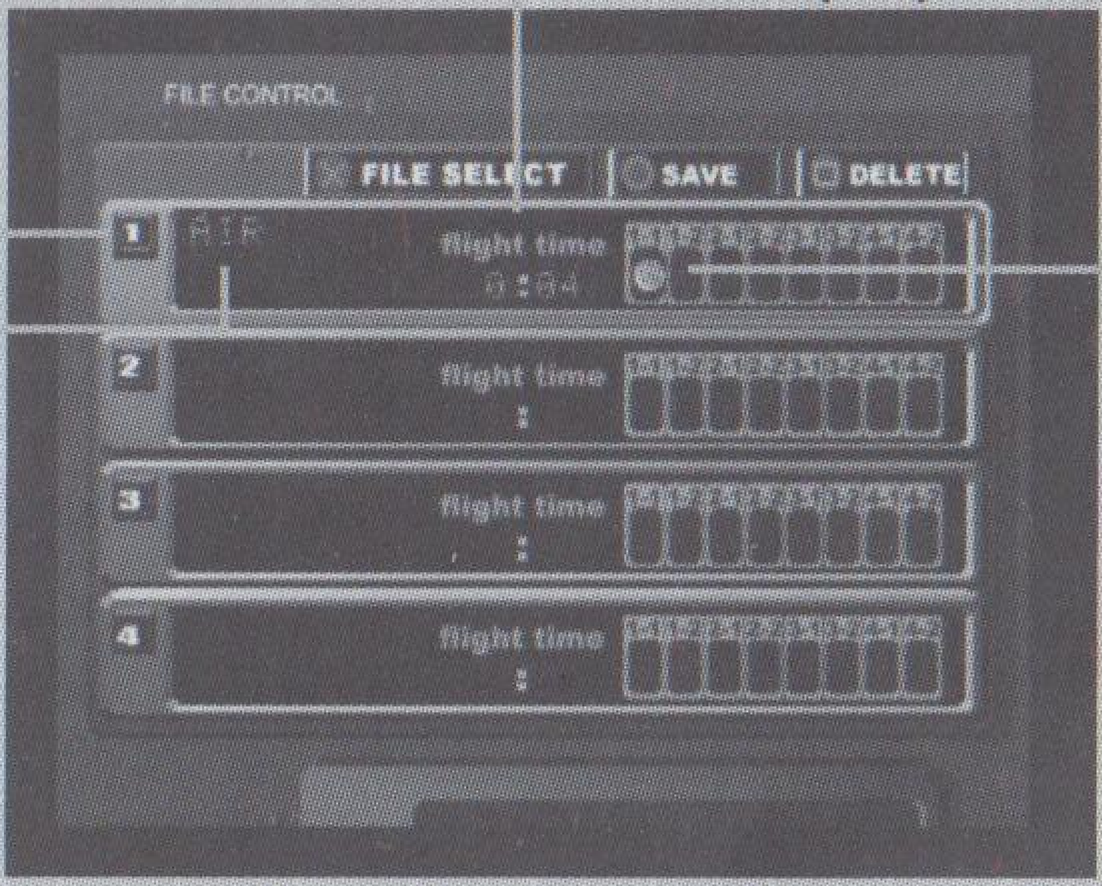
Select an already created play file. When the confirmation message appears, press the ⊗ button. If you want to delete a previously created play file, press the ■ button. When a message asks for confirmation, press the ⊗ button to delete.

Play file Information

File number

Total play hours in rescue mode

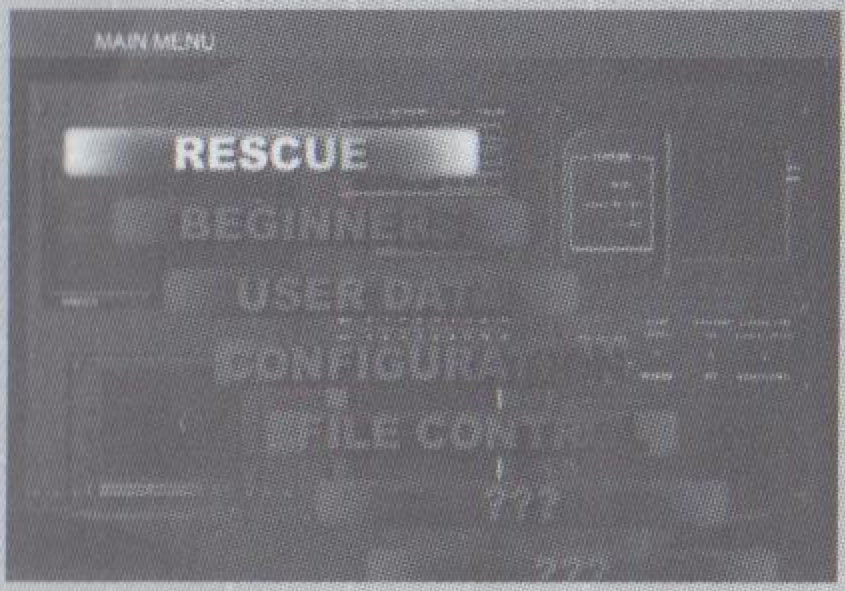
File name


FILE CONTROL
FILE SELECT
SAVE
DELETE
1
AIR
flight time
0:04
2
flight time
3
flight time
4
flight time

Type and number of medals awarded in each mission

*The play file also records various other data, such as the best time for each mission, the number of medals and star coins collected on each mission, configuration setup, and mission clear information.

Main selection screen


MAIN MENU
RESCUE
BEGINNER
USER DATA
CONFIGURATION
FILE CONTROL
???
???

Rescue – Play rescue mode

Beginner – Play beginners mode

User Data – Look at the data in a play file. See page 10.

Configuration – Change the game settings. See page 11

File Control – Load, save and delete files.

??? – Can be selected once certain conditions are fulfilled.

Rescue Mode

This is the main mode in the game, allowing you to challenge various missions. See page 13.

Beginner Mode

Learn the basics of operating a helicopter, and then try them out in free flight. Aimed at the first time player. See page 20.

Controls

The controller is set up in the following fashion.

L1 button – increase the speed of the main rotor. Acts as the collective stick. (Speed up)

L2 button – decease of the speed of the main rotor. Acts as the collective stick. (Speed down)

START button – Game start / pause.

R1 / R2 button – Lower wire, lower Bob, use rescue items.

Directional buttons – Make selections / change camera angle

△ button – Cancel menu selections / Cockpit view. (Whilst the △ button is pressed, you can press the directional buttons up, down, left or right to look in those directions. Press the △ button again to return to default view.)

□ button – Outside view (close)

✕ button – Confirm menu selections / Outside view (far)

○ button – "Radio Controlled" camera view

SELECT button – Fix the helicopter's position (during flight, it is fixed in the centre of the screen)

Left analog stick – Change the direction of the nose (acts as the Cyclic stick)

Right analog stick – Operates the tail rotor (Anti-torque pedals)

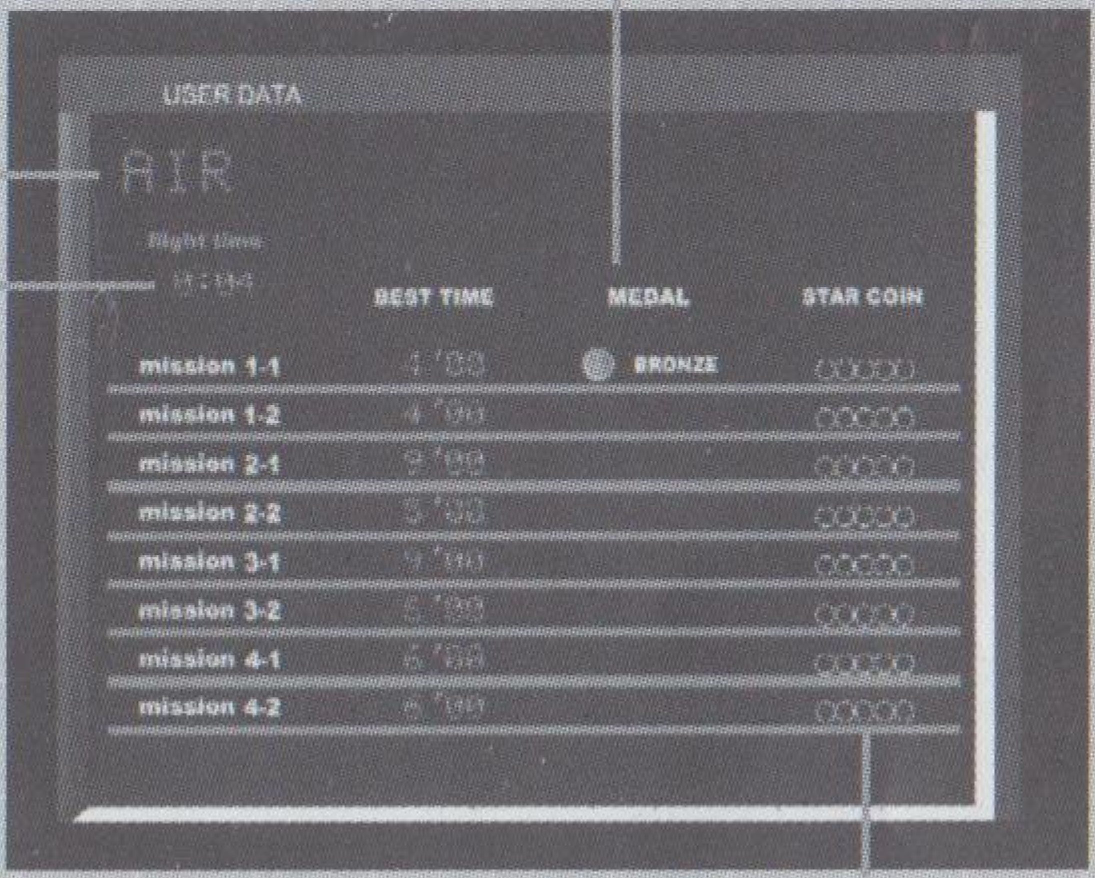
In order to use the left and right analog sticks, make sure your analog controller (DUALSHOCK®2) is in analog mode (indicator:red).

You can set the vibration ON or OFF in the configuration screen. See page 11.

NOTE: *Air Ranger Rescue can only be played with an analog controller (DUALSHOCK®2).*

User Data Screen

On the User Data screen you can see information contained in the play files.


User name
Medals received for each stage
Total flight time
Star Coins recovered in each stage

USER DATA

AIR

flight time
0:04

	BEST TIME	MEDAL	STAR COIN
mission 1-1	4'00	● BRONZE	○○○○○
mission 1-2	4'00		○○○○○
mission 2-1	9'00		○○○○○
mission 2-2	5'00		○○○○○
mission 3-1	9'00		○○○○○
mission 3-2	5'00		○○○○○
mission 4-1	6'00		○○○○○
mission 4-2	6'00		○○○○○

Configuration

On the Config Screen, you can configure the following options. When you are finished, press the △ button to go back.

Control Level – set the difficulty of the helicopter's control. The difficulty settings are as follows

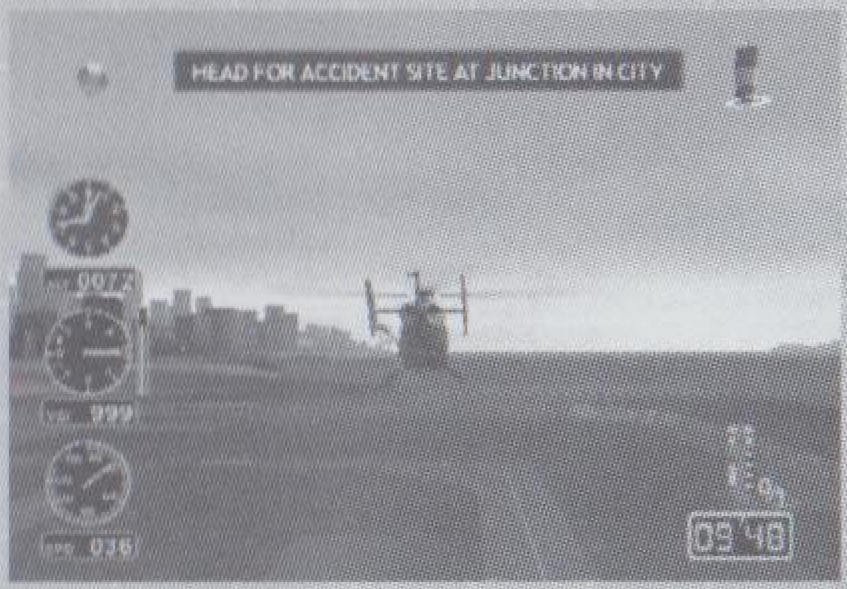
Effect / Level	**Easy**	**Normal**	**Real**
Anti-torque system 1 Effect of torque	*Full Auto.* The helicopter will not spin at all.	*Semi Auto.* Unconnected to the Collective Level, the helicopter will experience a set level of torque.	*Manual.* The amount of torque the helicopter is under is connected to the use of the Collective Stick.
Anti-Torque System 2 Effect of Height	*Full Auto.* Changing the direction of the nose will not effect height.	*Full Auto.* Changing the direction of the nose will not effect height.	*Manual.* Changing the direction of the nose will have effect upon height.
Collective Stick.	Vertical velocity responds slowly, so it is easy to control height.	Vertical velocity responds faster than in Easy mode.	Vertical velocity responds quickly, so it is hard to control height.
Cyclic Stick	The helicopter quickly returns to the neutral position.	The helicopter returns to the neutral position.	The helicopter slowly returns to the neutral position.

Sound – Switch between Stereo and Monaural sound

Vibration – Turn controller vibration On or Off

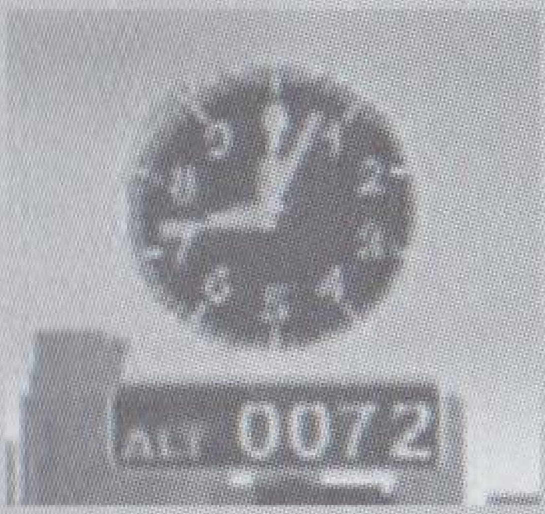
Control Type – Choose between Normal controls and Radio-Controlled style controls.

Reading the Screen

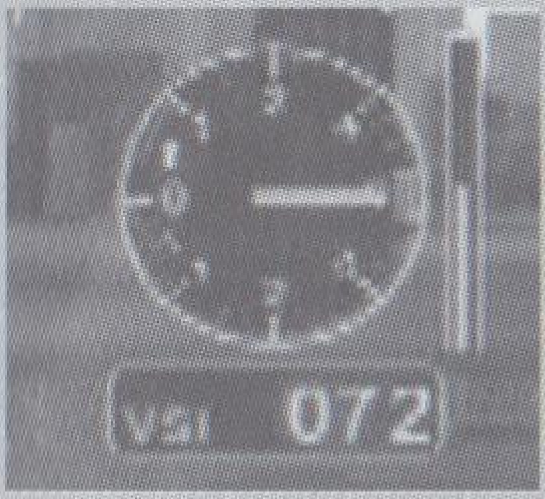


For an explanation of the in-game screen and Heads-Up Display (HUD) please refer to the Lesson section of this manual (see page 20).

Reading your Instruments

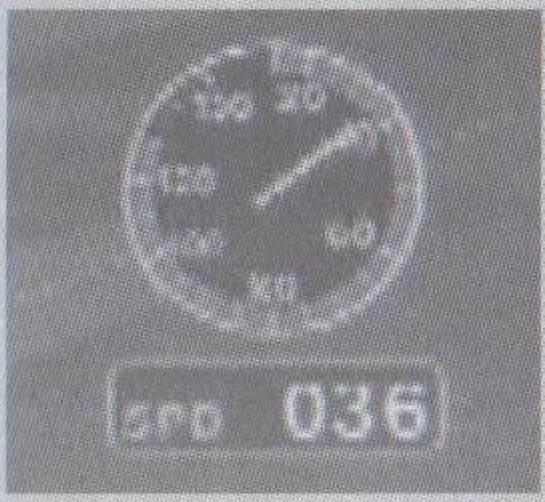


Altimeter (ALT) – This displays your altitude. It displays the height of approximately the middle of your helicopter above sea level. The large needle displays 100 feet, and the small 1000 feet. The number beneath is a digital readout giving your current height in feet as a number.



Vertical Velocity (VSI) – This displays your vertical speed (if you are ascending or descending). The lower number is a digital display. If the needle moves up (a + sign on the digital display) then you are ascending, and if it moves down (a – sign on the digital display) then you are descending. The units are 100 feet a minute for every '1'.

*1 foot is approximately 30.48cm.



Speed (SPD) – This displays your speed. The lower number is a digital display.

*1 Knot is about 1.85km.

Starting Rescue Mode

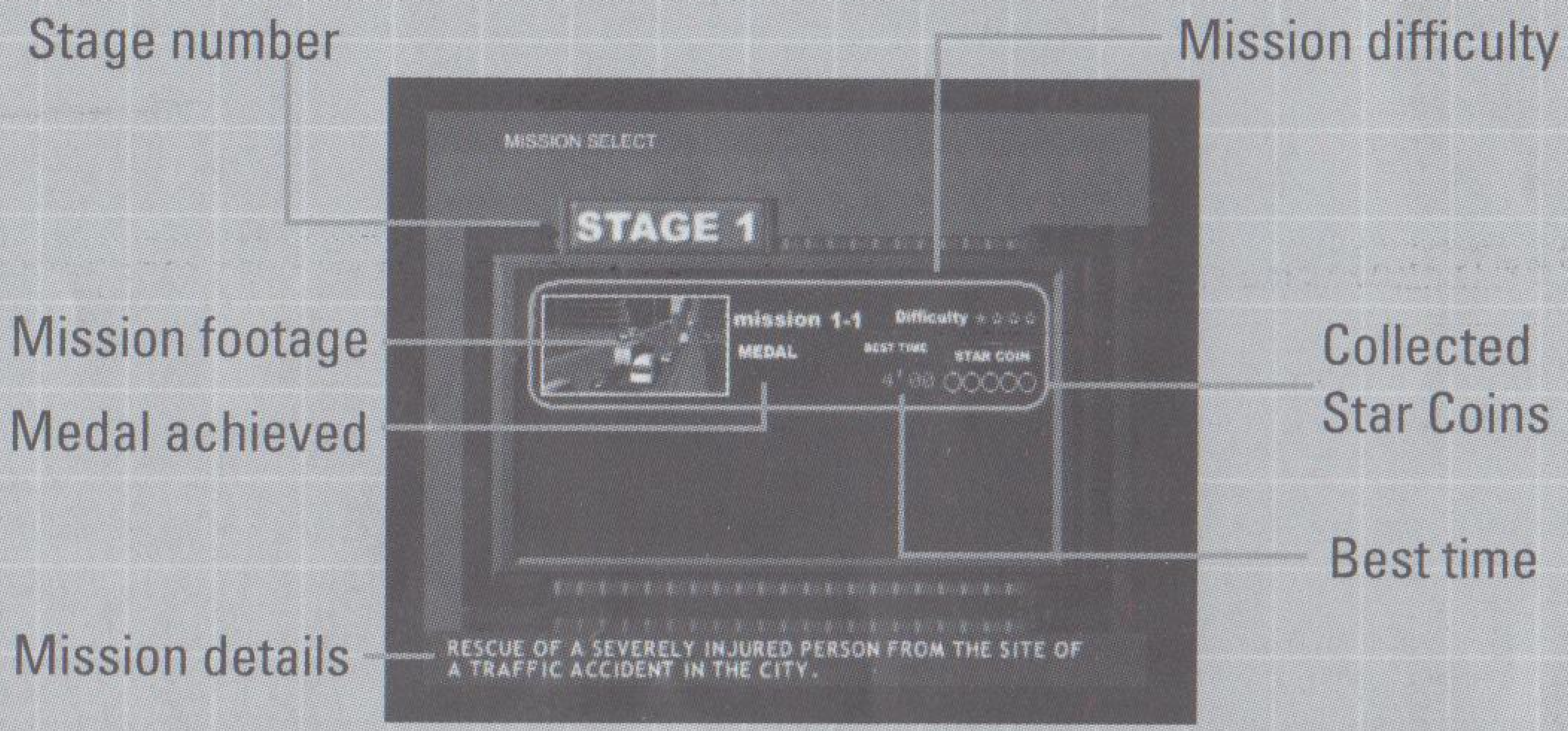
Stage Select

First select a stage.

To begin with, there is only one stage available. The other stages will open up as you begin to clear the game.

Mission Select

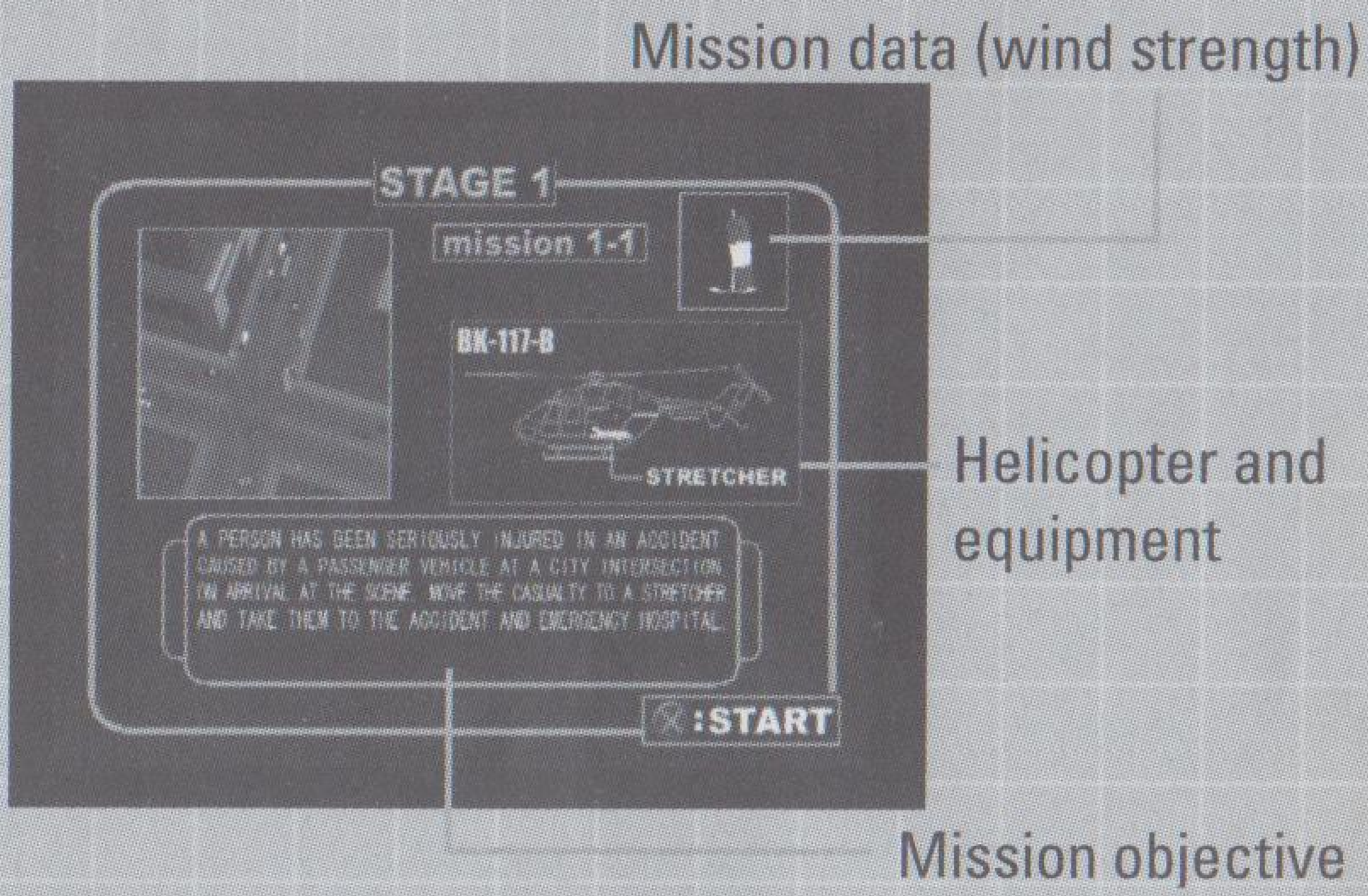
Next select a mission.


Stage number
Mission difficulty
MISSION SELECT
STAGE 1
mission 1-1
Difficulty ★☆☆☆
MEDAL
BEST TIME
STAR COIN
4'00 ○○○○○
Mission footage
Medal achieved
Collected Star Coins
Best time
Mission details

RESCUE OF A SEVERELY INJURED PERSON FROM THE SITE OF
A TRAFFIC ACCIDENT IN THE CITY.

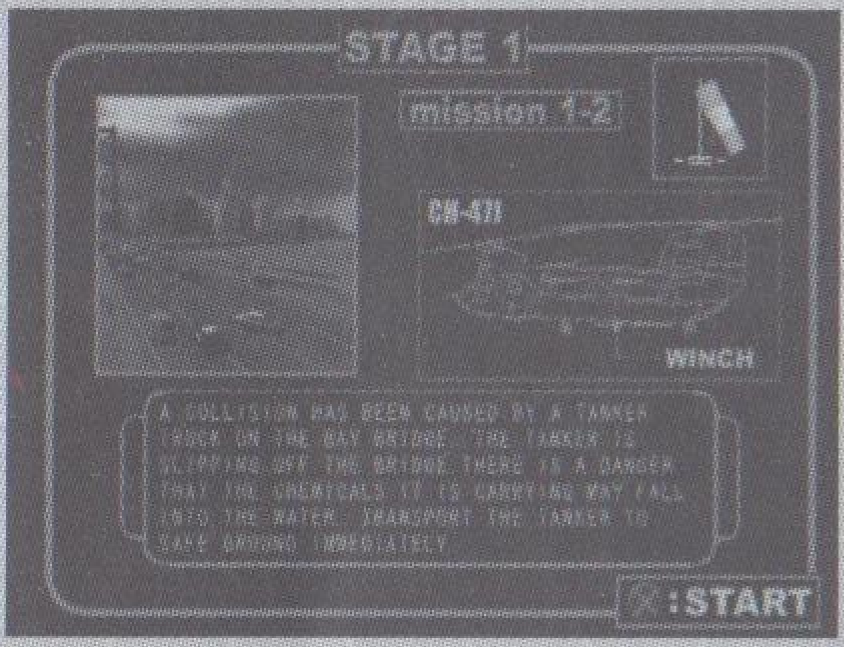
Briefing

Check the details of the selected mission.


Mission data (wind strength)
STAGE 1
mission 1-1
BK-117-B
STRETCHER
:START
Helicopter and equipment
Mission objective

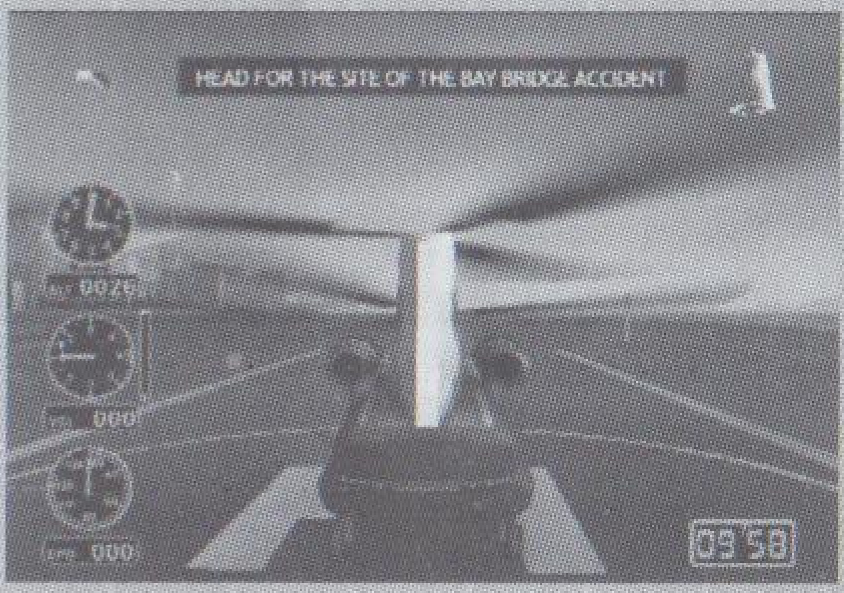
A PERSON HAS BEEN SERIOUSLY INJURED IN AN ACCIDENT
CAUSED BY A PASSENGER VEHICLE AT A CITY INTERSECTION
ON ARRIVAL AT THE SCENE. MOVE THE CASUALTY TO A STRETCHER
AND TAKE THEM TO THE ACCIDENT AND EMERGENCY HOSPITAL.

Basic Flow of a Mission

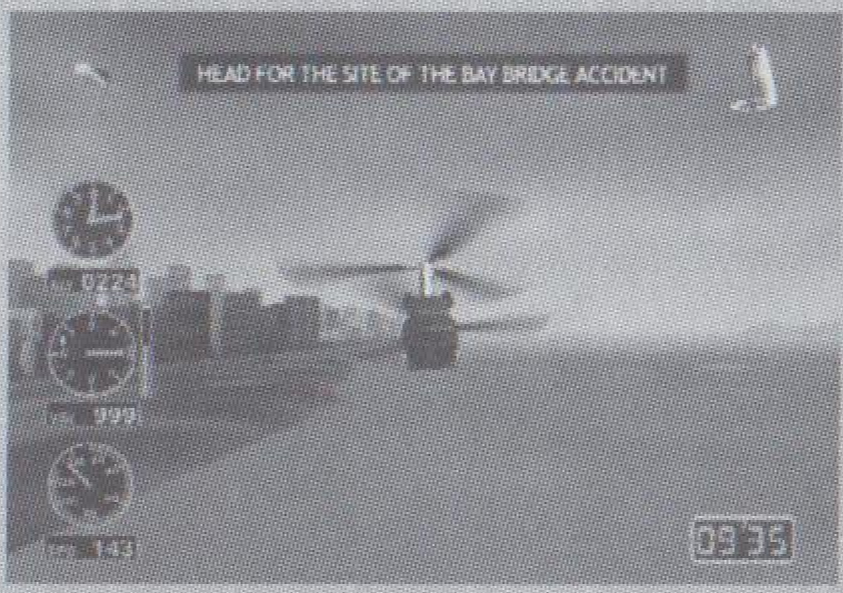

STAGE 1
mission 1-2
CH-47J
WINCH
:START

A COLLISION HAS BEEN CAUSED BY A TANKER TRUCK ON THE BAY BRIDGE. THE TANKER IS SLIPPING OFF THE BRIDGE. THERE IS A DANGER THAT THE CHEMICALS IT IS CARRYING MAY FALL INTO THE WATER. TRANSPORT THE TANKER TO SAFE GROUND IMMEDIATELY.

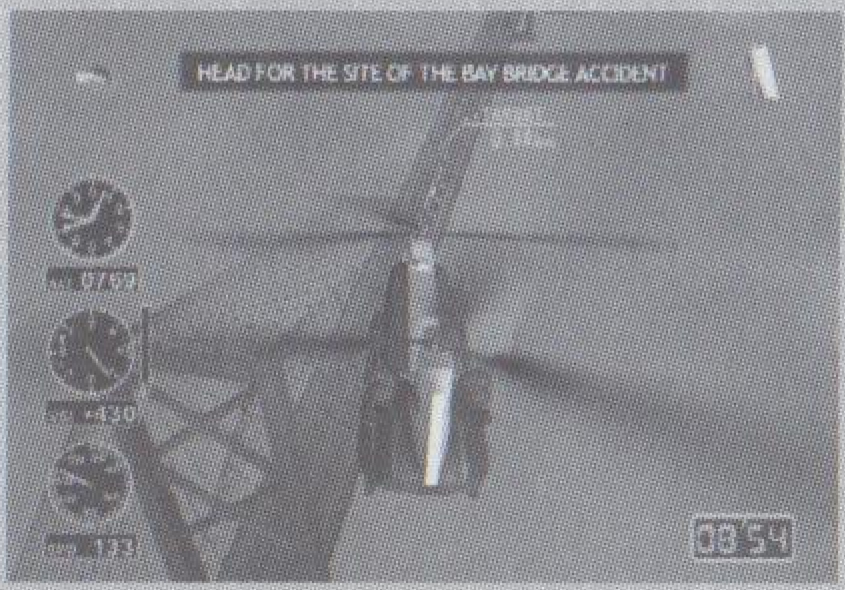
1 – Briefing. Details of the mission are displayed.


HEAD FOR THE SITE OF THE BAY BRIDGE ACCIDENT
0026
000
000
09:58

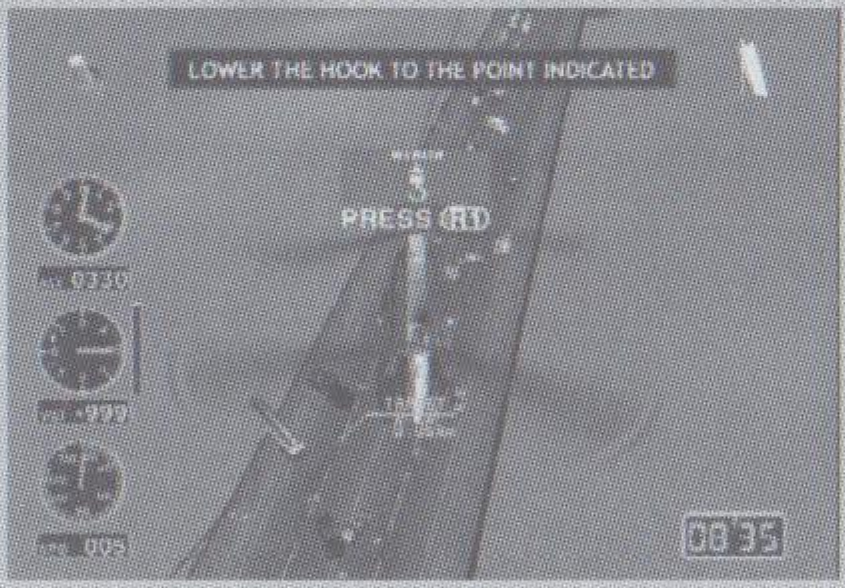
2 – Launch. Take off from the heliport, and head toward the target area. Use the L1 button to ascend, and the left analog stick to head in the direction the target arrow is pointing.


HEAD FOR THE SITE OF THE BAY BRIDGE ACCIDENT
0224
999
143
09:35

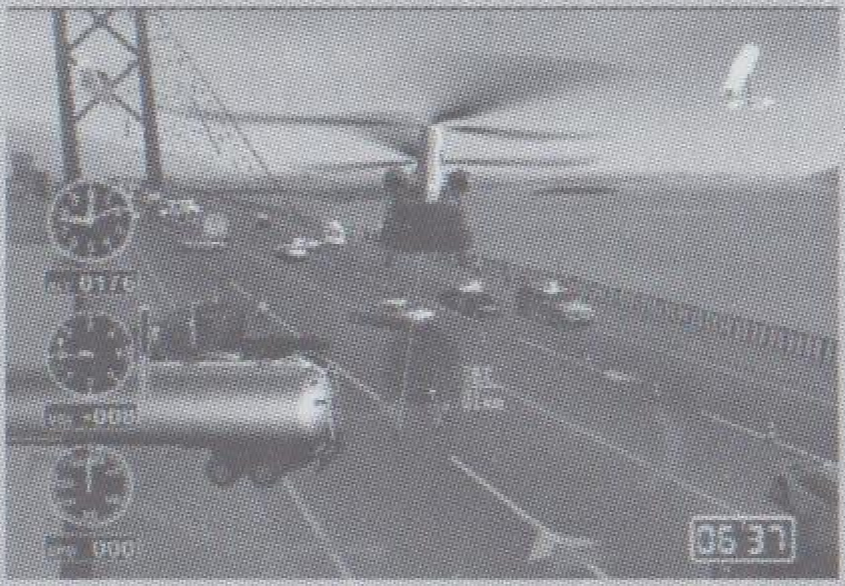
3 – Hurry to the scene. Once you are in the air, keep the L1 button depressed and use the left analog stick to hurry to the scene of the disaster.


HEAD FOR THE SITE OF THE BAY BRIDGE ACCIDENT
0799
+430
133
08:54

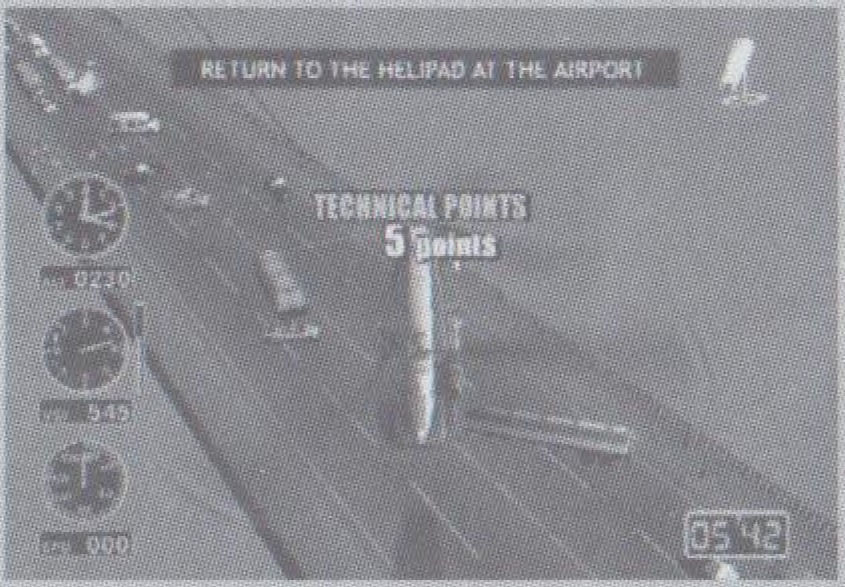
4 – Arrive at the scene. As you get close to the target area, your objective will come into view. Reduce your speed, and start to hover (level the helicopter out and use the right analog stick to keep the nose direction fixed). Then, use the left and right analog sticks to move carefully closer to the target. At the same time, use the L2 button to reduce your altitude. For some missions, you may have to rely upon a searchlight to locate your objective.


LOWER THE HOOK TO THE POINT INDICATED
PRESS R1
0330
+999
005
00:35

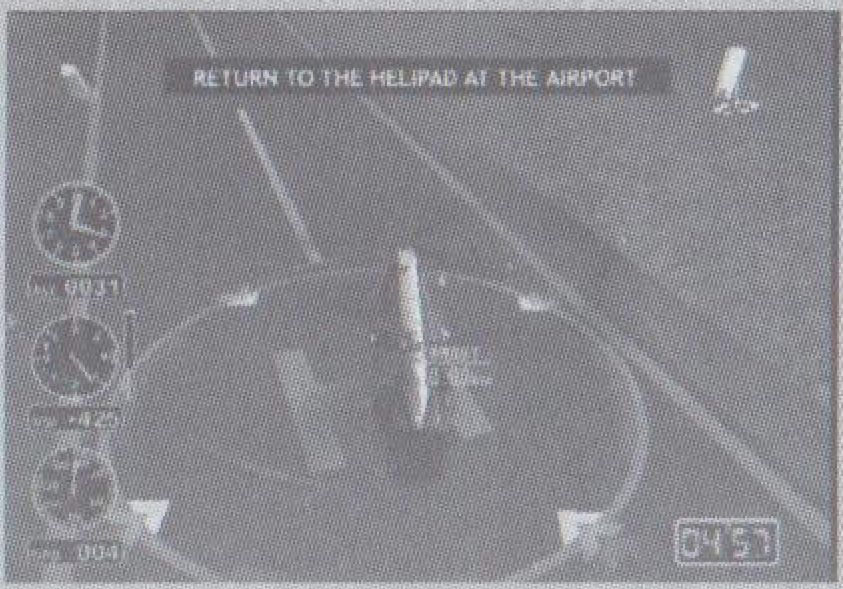
5 – Prepare for duty. As you near the target area, the icons for using special equipment or giving orders to the rescue staff will appear.


0176
+000
000
06:37

6 – Use the Equipment / Rescue Staff. Press the R1 or R2 button to deploy the rescue staff. Using careful control, continue to bring the helicopter closer to the objective. Once they begin the rescue, keep the helicopter in place by hovering.


RETURN TO THE HELIPAD AT THE AIRPORT
TECHNICAL POINTS
5 points
0230
945
000
05:42

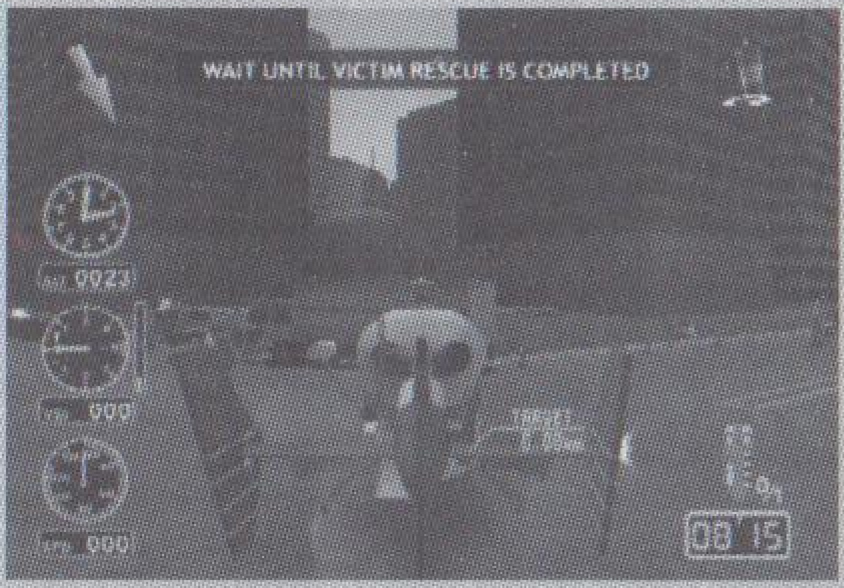
7 – Mission Complete. If the objective involves you moving an object, then the mission ends when you have safely moved it to the correct location. If the objective is rescuing casualties, then the mission ends when they are all safe. During a rescue mission, if the helicopter becomes full then you may have to return to base to drop off some of the passengers.


RETURN TO THE HELIPAD AT THE AIRPORT
0031
+425
004
04:57

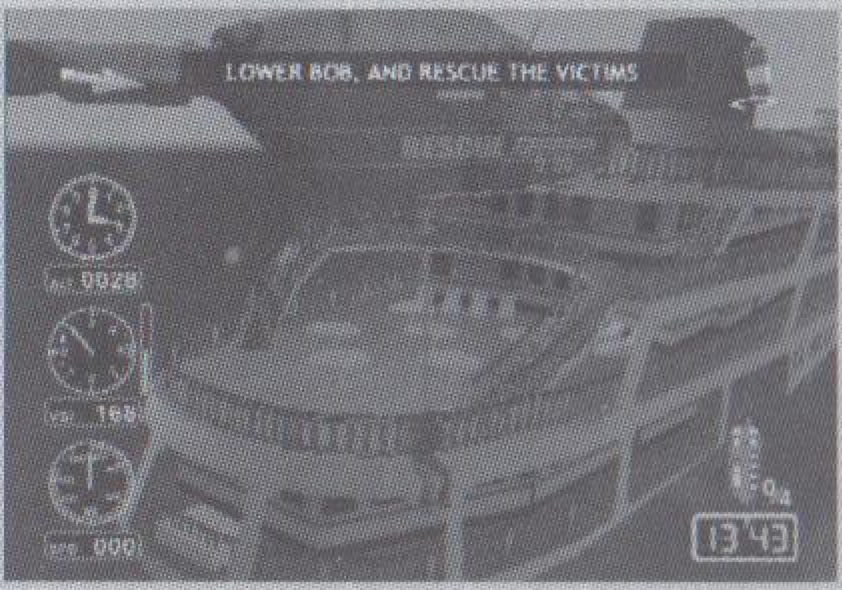
8 – Return to base. Once you safely finish the mission, return to base.

Mission Types

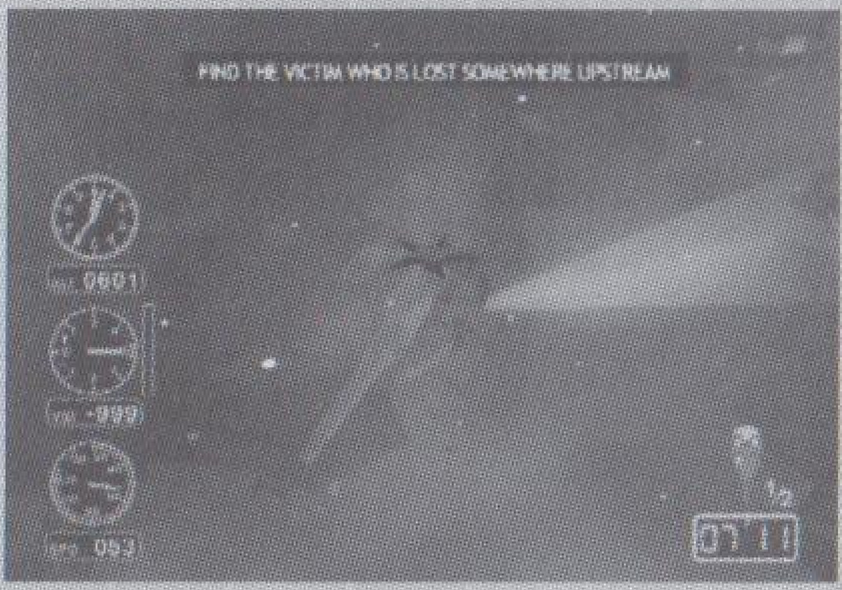
There are numerous types of mission.


WAIT UNTIL VICTIM RESCUE IS COMPLETED
08 15

Land rescue mission – Rescue people in trouble on land. Be careful not to collide with surrounding buildings when flying through built up areas.

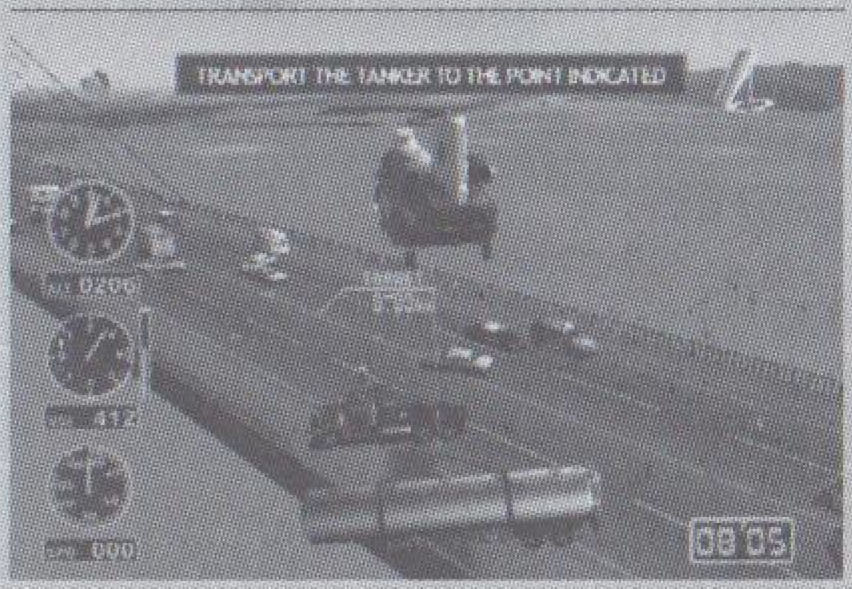

LOWER BOB, AND RESCUE THE VICTIMS
13 43

Sea rescue mission – Save people in trouble at sea. If the water is choppy then delicate control will be required. Also, at night you will have to use a searchlight to locate the survivors.


FIND THE VICTIM WHO IS LOST SOMEWHERE UPSTREAM
07 11

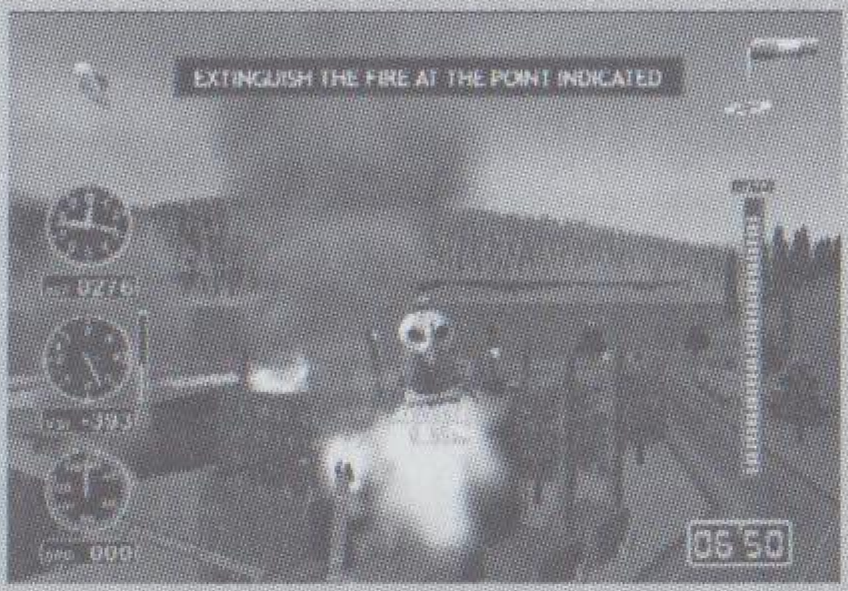
Mountain rescue mission – Rescue people in trouble in the mountains. In the canyons, the wind can change quickly. Be mindful of the surrounding rocks. Also, at night you may have to deploy a searchlight to locate the lost geologists.

**During missions to rescue people, the targets' life meter/s will be displayed. If this changes to yellow then 5 points will be deducted from your 'Clear' points after the mission.*



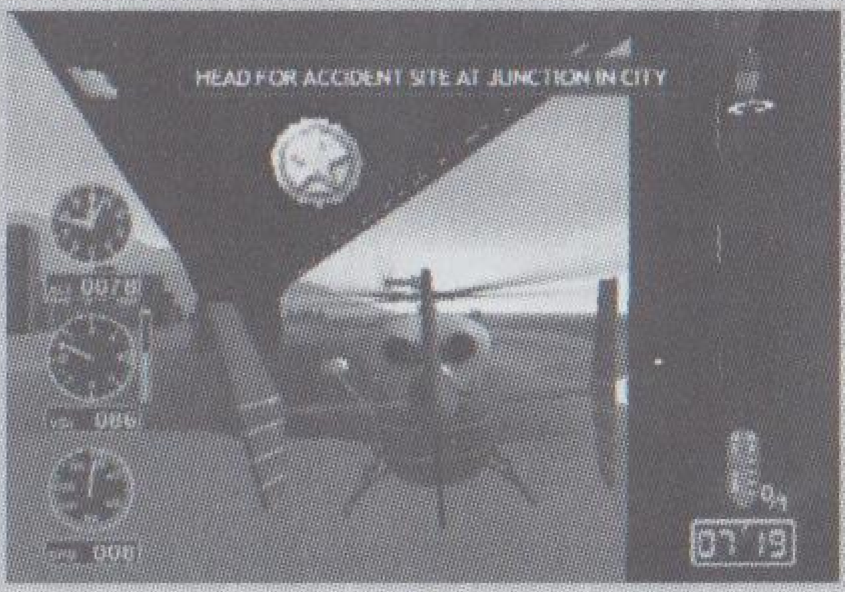
TRANSPORT THE TANKER TO THE POINT INDICATED

Transportation mission – Collect various things, and move them to a target point. Be careful of surrounding obstacles, and fly with caution.



EXTINGUISH THE FIRE AT THE POINT INDICATED

Fire fighting mission – Loaded up with fire fighting equipment, put out a raging blaze. Work with the Fire Fighters to put out the fire as quickly as possible.

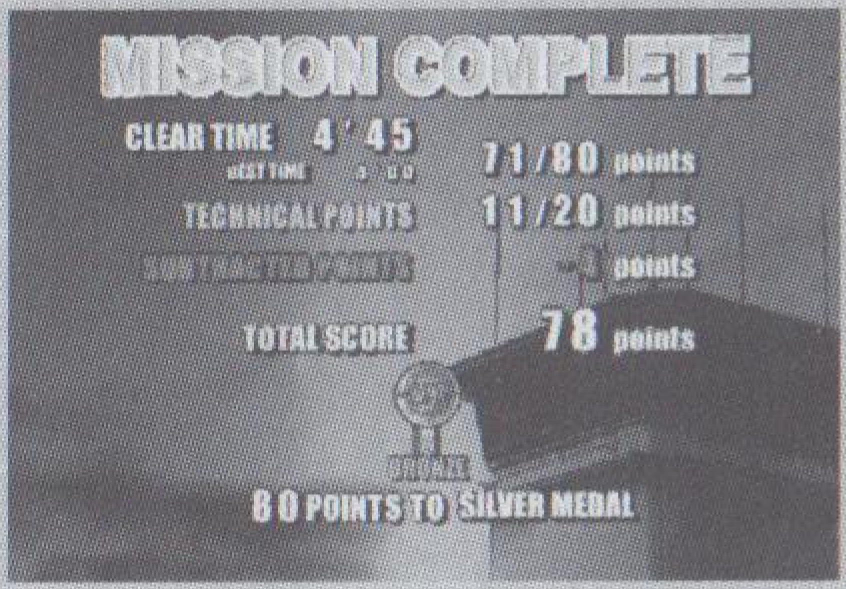


HEAD FOR ACCIDENT SITE AT JUNCTION IN CITY

Star Coin – Throughout the game, there are Star Coins hidden in many locations. You can collect these Star Coins by touching them with the helicopter. If you collect lots of them, then something good is sure to happen.

Result Screen

After you clear a mission, the result screen tells you how you did. Pay attention to the RESULTS screen. Studying it will help you improve your performance when you retry a stage.



MISSION COMPLETE

CLEAR TIME 4'45 71/80 points

TECHNICAL POINTS 11/20 points

SUBTRACTED POINTS [illegible] points

TOTAL SCORE 78 points

BRONZE

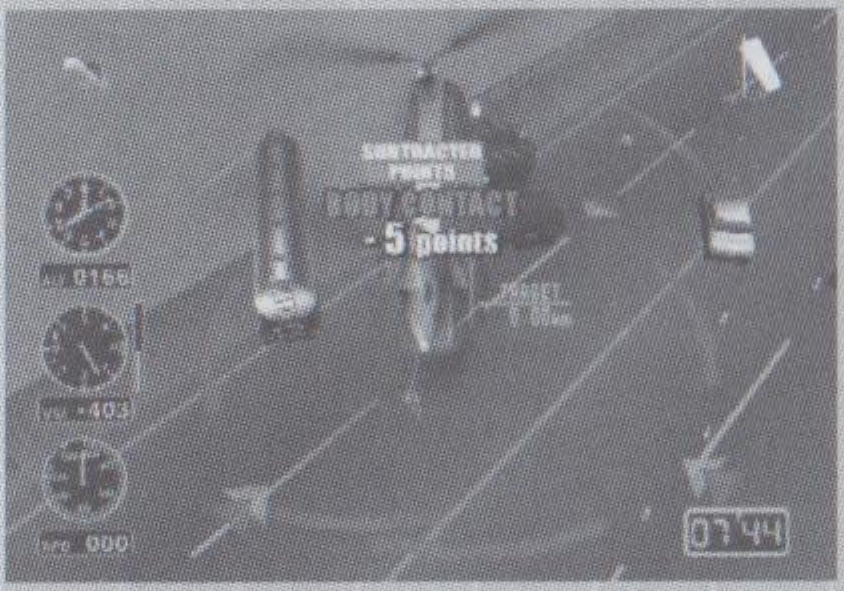
80 POINTS TO SILVER MEDAL

Once the mission is finished, you have two choices –

RETRY – Retry the same mission.

END – Finish the mission. Press the ⊗ button to go to the save screen.

Demerits



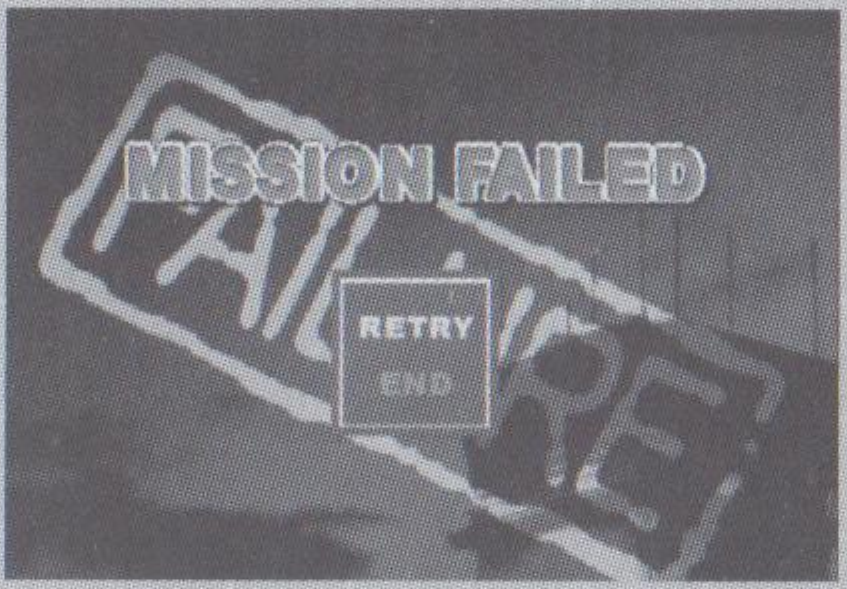
The following actions lead to reductions to your score.

Hard Landing	-10 points
Rotor hitting something	-2 points
Body hitting something	-5 points
Bob hitting something	-1 point
Object being transported hitting something	-1 point
Taking too long to save someone	-5 points
Touching fire	-5 points

Medals

Depending on your total points, you may receive a medal, starting from Bronze. A clutch of Platinum medals will prove who's the ace. If you finish a mission on a stage, the next stage's first mission becomes available, and if you clear it with a Gold medal or better then the second mission becomes available.

Game Over

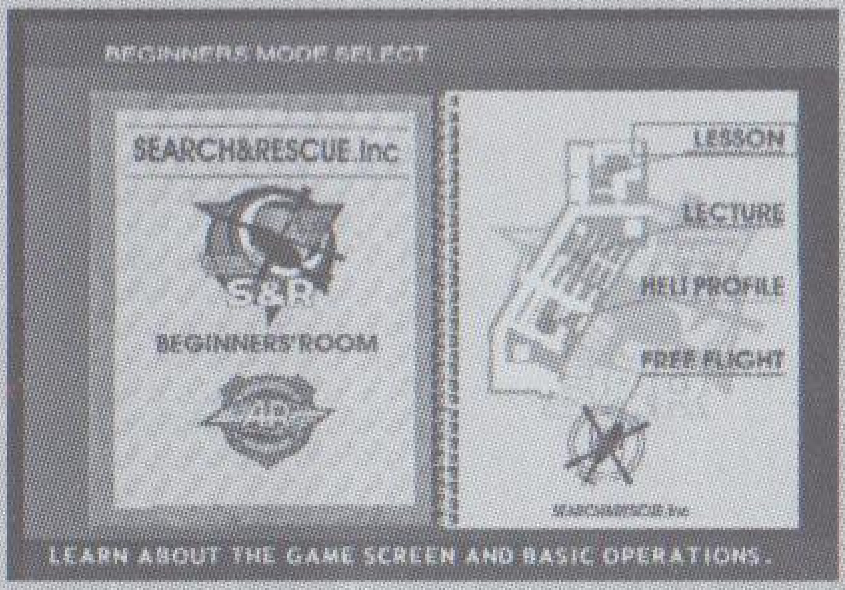

MISSION FAILED
FAILURE
RETRY
END

If you fail the mission then it is Game Over. You have two options from the Game Over screen.

RETRY – Retry this mission.

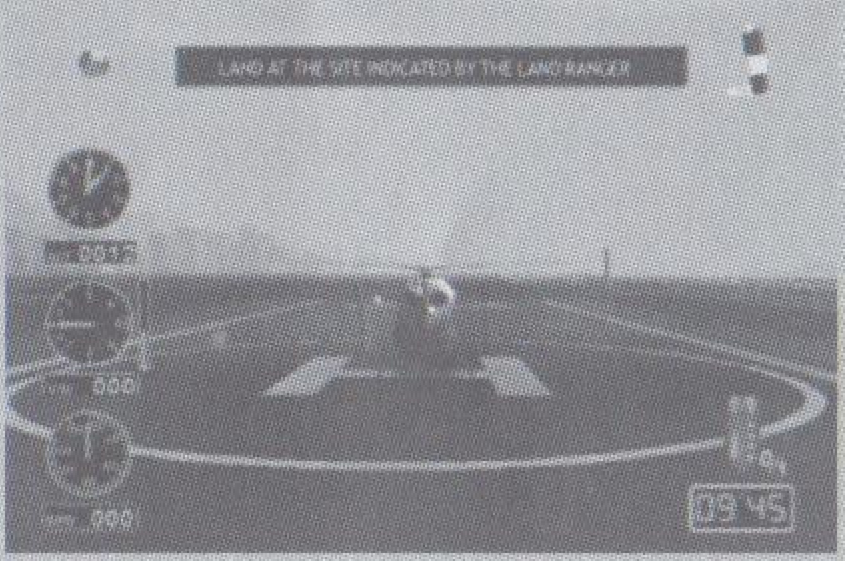
END – Finish with this mission, and return to the play file screen.

Beginners Mode


BEGINNERS MODE SELECT
SEARCH&RESCUE.Inc
S&R
BEGINNERS'ROOM
LESSON
LECTURE
HELI PROFILE
FREE FLIGHT
SEARCH&RESCUE.Inc

LEARN ABOUT THE GAME SCREEN AND BASIC OPERATIONS.

Beginners Mode allows first time players access to basic information, and also to practice flying freely.

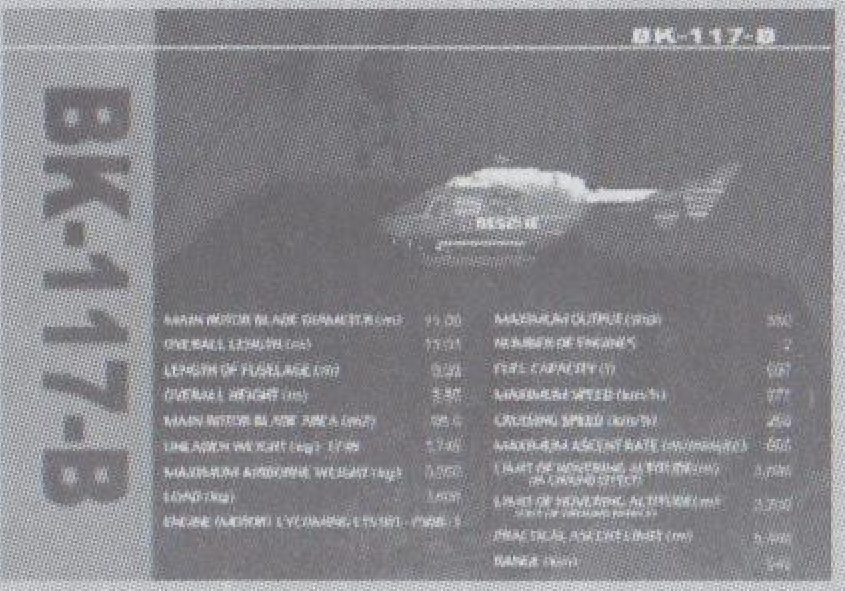


LAND AT THE SITE INDICATED BY THE LAND RANGER

0012
000
000
09 45

Lesson – Here you can learn about the on screen displays and the basics of control.

Lecture – Your chance to brush up on the basics of helicopter aviation. You must be playing AIR RANGER RESCUE HELICOPTER in 50Hz mode to view this information.


BK-117-B
BK-117-B

Heli-Profile – Here you can check out all the helicopters that have appeared in the game so far.

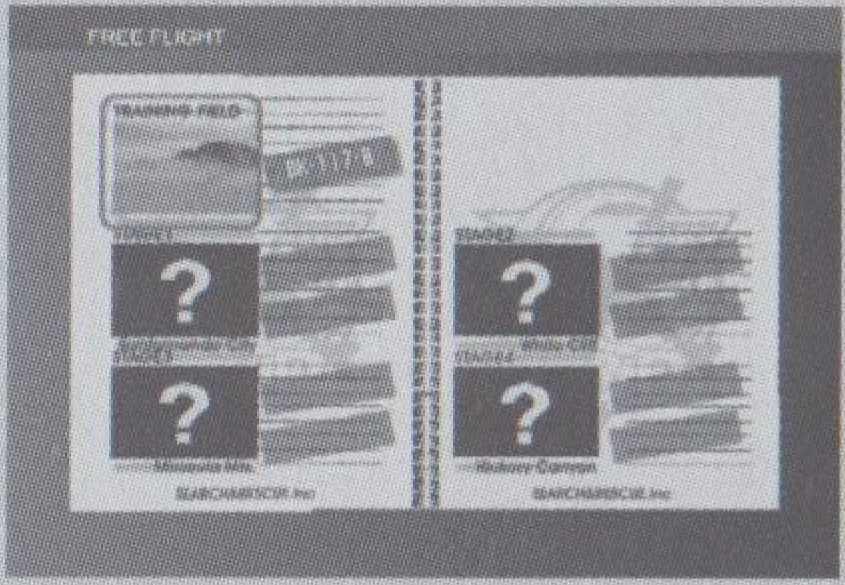
Directional buttons – left/right – change the helicopter on display.

Left analog stick – rotate the helicopter

R1 button – Zoom in

R2 button – Zoom out

Free Flight



Here you can select a map and fly freely over it.

Directional buttons – Select a map / helicopter

⊗ button – confirm

△ button – cancel

To begin with, you can only use the BK-117B helicopter, and only select the "Training Field" map.

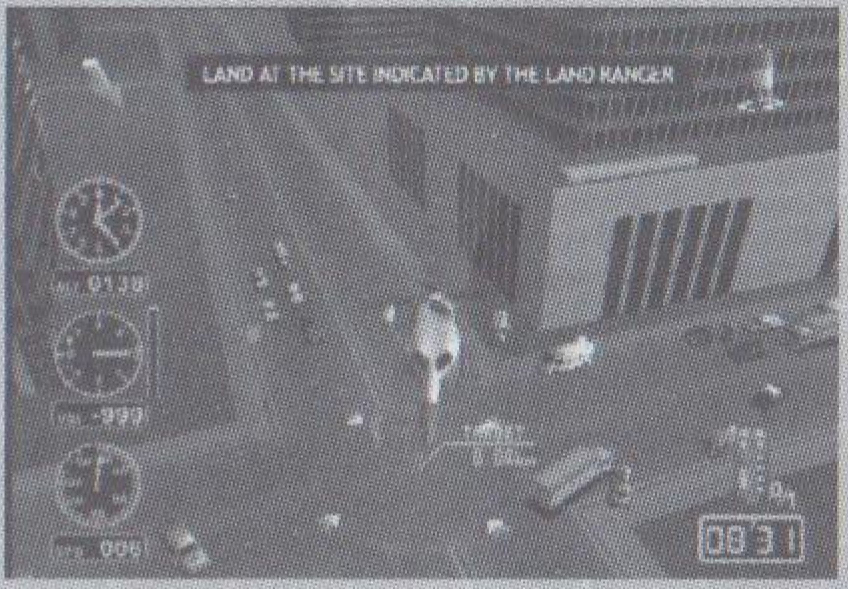
Once you finish a stage's second mission with a Gold medal or higher, new maps will become available here.

If you crash during Free Flight, you will be returned to the Beginners Mode selection screen. You can also quit out at any time by pressing the ▶START button.

Game Hints

HEAD FOR ACCIDENT SITE AT JUNCTION IN CITY
03:34

Full Speed to the Target! – Of the points required to get Medals, a large portion are taken up by Time Points. In order to finish the mission as quickly as possible, head at full speed from your starting point to the accident site.

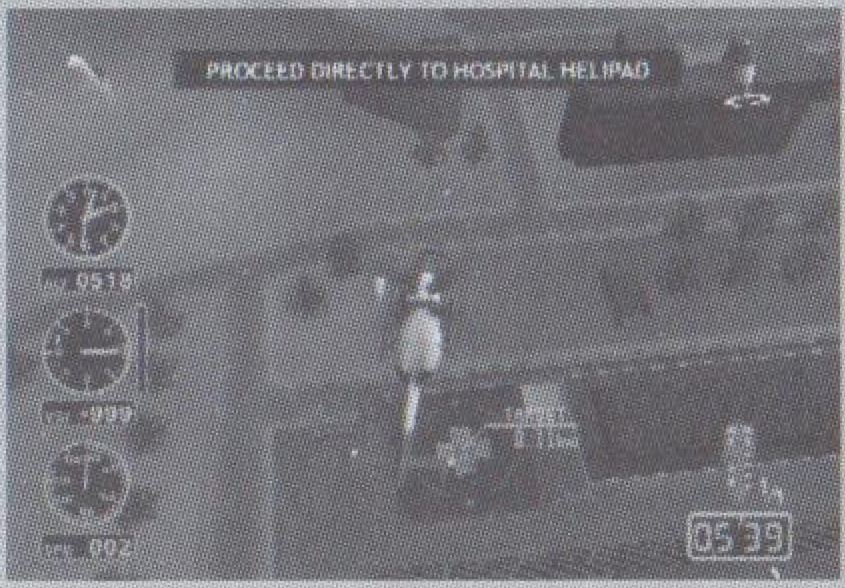

LAND AT THE SITE INDICATED BY THE LAND RANGER
08:31

Once you arrive: softly softly! – Once you make it to the scene, then precise, accurate control becomes vital. Hitting things and landing roughly causes demerits to be issued, so land and rescue using the L1 / L2 buttons and the left / right analog sticks very gently.

MAINTAIN ALTITUDE, WAIT UNTIL HOOK IS CONNECTED
07:50

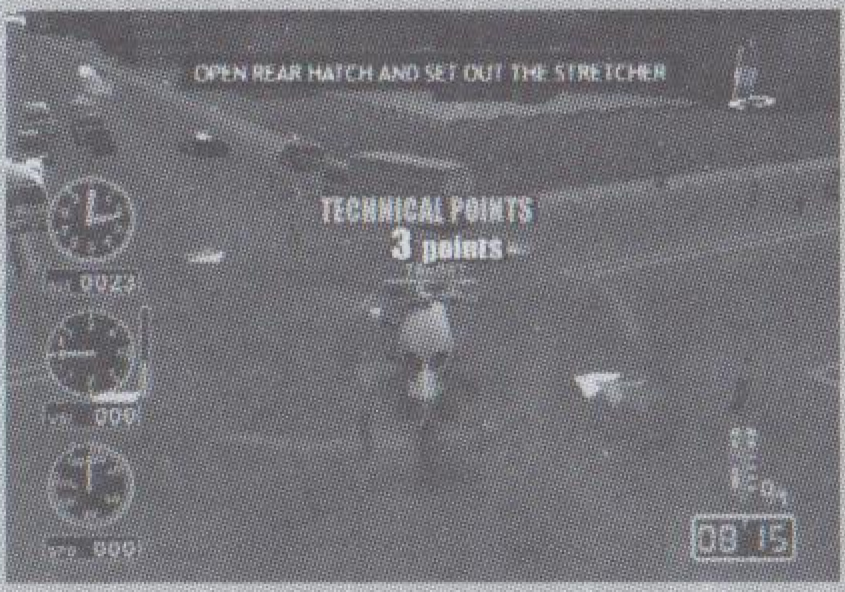
Learn to hover – Watch the vertical velocity – hovering is a key ability of the helicopter. First, level out and use the L2 button to lower your height. The vertical velocity will move into minus figures. Next, whilst watching your altitude, once you have descended low enough start using the L1 button, gently, until the vertical velocity reaches zero. So long as your helicopter is levelled out, then it should just hang in the air.

Use the left and right analog sticks, just a little – once you are hovering, the helicopter is not especially stable – especially if the wind happens to be blowing. Here, use the left and right analog sticks to keep the craft in check. What you need to aim for here is gentle, precise, smooth controlling. If you put too much force behind it, then you will lose control of the helicopter.



PROCEED DIRECTLY TO HOSPITAL HELIPAD

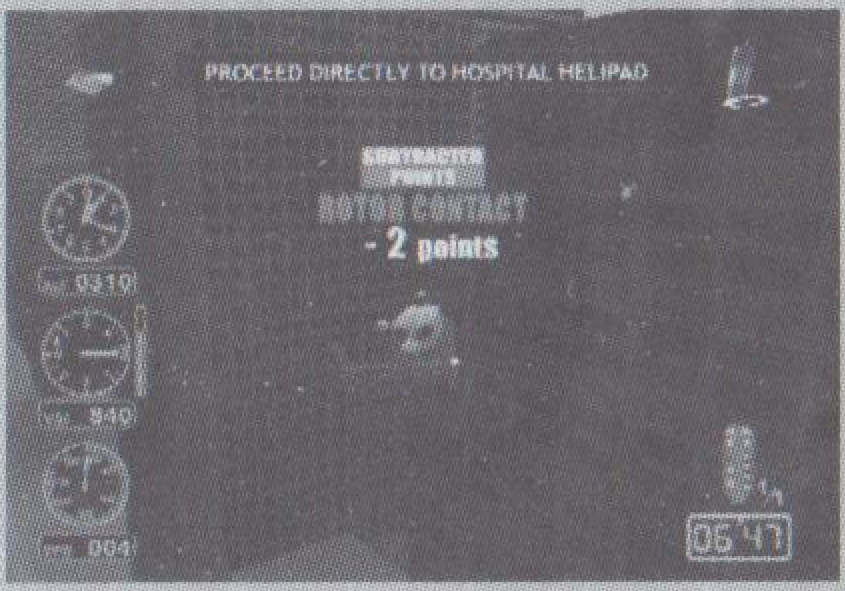
A different point of view – When landing or carrying out a rescue, first use the directional buttons to change the camera angle. If you press it upwards, then you can look down directly from above the helicopter, and this makes landing and the like much easier to pull off.



OPEN REAR HATCH AND SET OUT THE STRETCHER

TECHNICAL POINTS 3 points

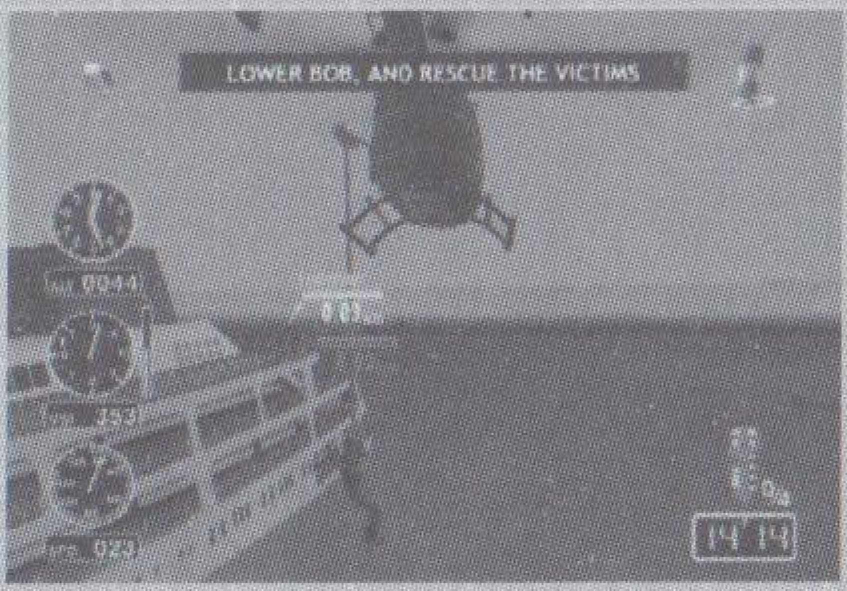
Land it straight! – A rough landing leads to demerits. When using the L2 button to descend toward the ground, don't forget to use the L1 button to keep your speed in check. Also, the closer you land to the centre of the landing zone, the more technical points you will receive.



PROCEED DIRECTLY TO HOSPITAL HELIPAD

ROTOR CONTACT - 2 points

Mind your head – If your rotor or the helicopter's body comes into contact with anything, then you will get demerits. Also, you need to take particular care that Bob does not hit anything when he is lowered from the helicopter. Make good use of the variable camera angles and be sure not to hit anything.



LOWER BOB, AND RESCUE THE VICTIMS

Women and Children First! – During rescue missions, the life meters of the targets will be displayed. Once this meter turns yellow you will be awarded a hefty demerit, so try and save those with the shorter meters first. Especially during rescues at sea, you will really want to save those in the water first.

Heli Profiles

BK-117B

Also employed by the Fire Service, this craft is the most balanced and best equipped for 'across the board' rescue operations. A rescue operative can be lowered on a winch, and so casualties can be air lifted to safely without the need to land. Also, it is equipped with a stretcher to transport the severely injured, and can also be equipped with a hose to fight fires. An 'all-round' excellent machine.

CH-47J

A large, double rotor helicopter. A powerful beast, and thus the most stable when hovering in the air. It can load vehicles through it's rear hatch, and carry as many as fifty people at once.

OH-6D

Although it can carry fewer passengers than the other craft, it can also make the most of being small and slide gracefully between the gaps in buildings. Moreover, the view from the cockpit is wide and clear, so it is excellent for searching for targets from the air.

Helicopter FAQ

Why does a helicopter fly?

A helicopter has a large, main rotor attached to the top. This rotor is made up of a number of blades (between 2 to 5, normally), and just like the main wings of an aeroplane these create the lift that allows the helicopter to rise from the ground – in this case, by spinning. The rotor can create lift against the ground or against the surface of water, and the helicopter can then rise up into the air. If the rotor is tilted then the lift can be produced at an angle, and so if the rotor is titled forward this will have the effect of moving the helicopter forward as well. By changing the angle of the rotor, the helicopter can move to the sides or even backwards, and hover stationary in mid air.

Why does a helicopter have two rotors?

Your average helicopter has a second rotor, as well as the main one, on the tail. As with the main rotor, this tail rotor also creates lift by spinning, but seeing as it is set on it's side it creates lift horizontally. Due to the spinning of the main rotor, the reaction (torque) to this of the main body would be to spin in the opposite direction. However, this tail rotor resists this force and cancels it out. The tail rotor can also, by changing the direction of the anti-torque, alter the direction of the nose of the helicopter when hovering and in emergency circumstances, and is used in manoeuvring.

Why does the CH-47J have two main rotors?

Another way of cancelling the problem of torque is, as well as the tail rotor, to attach a second main rotor and have the two of them then rotate in opposite directions. If one main rotor spins to the right and so exerts torque to the left, and the other rotor spins at the same speed to the left and so exerts torque to the right, then they will cancel each other out. However, this means that two rotors of exactly the same size are required, and so this makes the helicopter, by necessity, much bigger. That is the reason why you only see this solution on the bigger craft, such as the Chinook CH-47J.

So where are helicopters used?

There are many areas in which helicopters are currently active, due to their abilities to take off directly from the ground and to hover stationary in the air, feats that other aircraft cannot replicate. One excellent representative example is use in rescues in the mountains or at sea, where they can arrive at the scene faster than a boat or vehicle and then carry out the rescue whilst hovering. In recent years, they have also started to be employed in medical emergencies. They are also used for supporting construction work in the mountains, and other transport work, taking supplies and human resources out to oil platforms, fire fighting and fire prevention, by the police, in agriculture, for gathering traffic information, and for pleasure flights and sightseeing.

How fast is a helicopter?

The main rotor, the primary propulsion of the helicopter, rotates in a circle with its shaft as the centre. The problem here is that when the air speed across the spinning blades changes, the amount of lift they can produce also changes. As the blades start to get closer to the vertical this gap increases, getting bigger as the helicopter increases in speed, and can cause a dramatic drop in speed or the helicopter to lose control if taken too far. So the limit of a helicopters speed is within the boundaries before this phenomenon occurs. Although it ultimately depends upon the shape of the blades and the design of the machine, generally speaking the practical top speed of a helicopter is about 320km/h. The current world record for the fastest speed in a helicopter is 400.87km/h.

What is the biggest helicopter in the world?

There are various ways of gauging how “large” an aircraft is; one being just generally how big it is, and another the maximum it can hold when off the ground. In the world of the helicopter, the Russian MI-26 is thus the biggest, on both counts. With the rotor spinning it is 40.025m tall. The main rotor is the largest in the world, at 32.00m, and it also has eight blades. It weighs 56000kg off the ground, and can carry up to 22000kg. This puts it far ahead of the world ranked number 2, the Sikorsky H-53E, America’s largest helicopter, which manages a mere 33340kg on the ground and can carry just 14515kg.

Are there any rare helicopters?

The most representative of the rarer helicopter is the Russian Kamov Ka-26. It is the same as the Chinook in that it is designed with two main rotors, but these are both placed on the same main shaft. They spin in opposite directions to cancel out torque, and this is called a tandem rotor. Many countries have continued research into getting rid of the tail rotor, and from France came the fan called the Fenestron, which is like a ventilation fan with fixed vertical blades. Seeing as the patent on the Fenestron is now expired, Japan and America are also making helicopters using this design. America has also developed and is now using a system of compressed air to cancel out torque, called the "notor".

So how much does a helicopter cost?

The price of a helicopter changes, as you would expect, according to such factors as size and age. The small two-seater piston engine Robinson R22, the personal helicopter best seller, can be yours for $164,000, which is remarkably cheap. For a single turbine engine, a representative price is that of the Bell 206B-3 Jet Ranger, which costs $1,500,000. For a bigger twin engine, the BK117 weighs in between $4,700,000 and $5,900,000. The top business craft is the Sikorsky S-76C, which has the highly executive price tag of $5,900,000. The Japanese Self Defence Force CH-47JA costs $22,000,000.

I want to ride in a helicopter!

There are plenty of chances to see a helicopter in action, but people who have actually ridden in one are a lot fewer than those who have ridden, say, a jumbo jet. It is possible to pay to take a flight in a helicopter, but there are often complications with busy or totally booked up company schedules. Some companies do actual pleasure flights, however, and using this method is probably the best. In order to actually fly one yourself, you need a license. You must train for this license in the same way that you do for a car license.

Customer Service Numbers

• **Australia**	**1902 262 662**	Calls charged at $1.99 (incl.GST) per minute. Please call these Customer Service Numbers only for PlayStation Hardware Support.
• **Österreich**	**0820 500 535**	0.145€. Bei allen Fragen rund um die PlayStation kontaktieren Sie bitte den Kundenservice.
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